

REMARKS

Claims 5, 7, 8, 10, 11, 13, 14, 16 and 17 are pending. By this Amendment, claims 5, 7 and 14 are amended, and claims 6, 9 and 12 are canceled without prejudice or disclaimer.

Claims 5 and 14 are amended to incorporate the subject matter of claim 6. Claim 7 is amended for dependency. New claims 16 and 17 are added. No new matter is added.

Applicants appreciate the courtesies shown to Applicants' representatives by Examiner Heyi in the February 3, 2009 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action rejects claims 5-14 under 35 U.S.C. §102(b) over Maruyama et al. (U.S. Patent No. 5,827,593, hereinafter "Maruyama"). The rejection of canceled claims 6, 9 and 12 is moot. Applicants respectfully traverse the rejection of the remaining claims.

As discussed during the personal interview, Maruyama does not disclose a light transmitting layer formation step of forming a light transmitting layer thinner than a substrate on the information recording face, a punching step of punching out at least a part of an area inside a circular cut by a punching tool to ... form both center holes in the light transmitting layer and the substrate, and a molding step, wherein the light transmitting layer formation step, a cutting step and a punching step are conducted in this order, as recited in independent claim 5.

Further, Maruyama does not disclose a cutting device for forming a circular cut in a light transmitting layer... thinner than a substrate on the information recording face, and a punching device for punching out at least a part of an area inside a circular cut by a punching tool to ... form both center holes in the light transmitting layer and a substrate after the circular cut is formed in the light transmitting layer by the cutting device, as recited in independent claim 14.

The Office Action asserts that Maruyama discloses the claimed molding step, light transmitting layer formation step, cutting step and punching step of independent claim 5. See pages 2 and 3 of the Office Action. Further, the Office Action asserts that Maruyama discloses the claimed cutting device and punching device of independent claim 14. See page 6 of the Office Action. Applicants respectfully disagree.

The Office Action asserts that the disc substrate formed by means of the injection molding of Maruyama corresponds to the claimed substrate of independent claims 5 and 14. The Office Action also asserts that the light transmissive substrate 21a of Maruyama corresponds to the claimed light-transmitting layer of independent claims 5 and 14. See pages 2, 3 and 6 of the Office Action. However, Maruyama merely discloses first and second disc substrates 20 and 26 that each have light transmissive substrates 21a and 21b, reflective layers 22 and protective layers 23. See Fig. 2 of Maruyama. In other words, Maruyama does not disclose another substrate other than light transmissive substrates 21a and 21b in each of the first and second disc substrates 20 and 26. Therefore, Maruyama fails to teach the claimed substrate and light-transmitting layer of independent claims 5 and 14.

Moreover, Maruyama does not disclose any thickness relationship between the light transmissive substrates 21a and 21b. Therefore, even if the light transmissive substrates 21a and 21b correspond to the claimed substrate and light transmitting layer of independent claims 5 and 14, Maruyama still does not disclose that the one of the light transmissive substrates 21a and 21b is thinner than another light transmissive substrates 21a or 21b. Thus, Maruyama does not disclose the light transmitting layer formation step and the cutting device, as recited in independent claims 5 and 14.

In addition, Maruyama discloses that a fixed bushing 10 and a cut-punch 6 cut off an unnecessary portion of a hardened material in cooperation to make a disc substrate. See Fig. 1 and col. 4, lines 41-46 of Maruyama. In other words, Maruyama discloses that the center

holes in the substrate disc are formed when making the disc substrate. Further, Fig. 2 of Maruyama discloses a two layer substrate that is formed by pasting the first disc substrate 20 formed by the conventional method to the disc substrate 26 formed as discussed above. See Fig. 2, col. 4, lines 59-65 and col. 5, lines 26-41 of Maruyama. Therefore, Maruyama merely discloses that the two layer substrate is formed by pasting the first and second disc substrates 20 and 26 in which the center holes have already been formed. Therefore, Maruyama does not disclose the punching step and device forming both center holes in the light transmitting layer and the substrate after cutting the circular cut in the light transmitting layer, as recited in independent claims 5 and 14.

By contrast, independent claims 5 and 14 recite that the circular cut is formed prior to the punching step is performed, and therefore, the transmitting layer is divided exactly at the circular cut by stress concentrates on the circular cut in the transmitting layer. Moreover, independent claim 5 and 14 recite the circular cut in the light transmitting layer is formed at a larger diameter than an inner diameter of the center hole in the substrate, and the area inside the circular cut is pressurized in a thickness direction by the punching tool to divide the light transmitting layer at the circular cut and to punch the light transmitting layer and the substrate, thereby forming the center hole at a larger inner diameter than that of the center hole in the substrate in the light transmitting layer. Maruyama merely discloses the first and second disc substrates 20 and 26 that have center holes having the same inner diameter. See Fig. 2 of Maruyama. In other words, Maruyama does not disclose a light transmitting layer having a larger inner diameter than that of center hole in the substrate.

Further, independent claims 5 and 14 recite that the light transmitting layer is thinner than the substrate on the information recording face.

A thinner transmitting layer allows using an objective lens having higher numerical aperture. The objective lens having higher numerical aperture can reduce the spot diameter of

laser beam. Therefore, an areal density of an optical recording medium can be improved. See page 2, line 21 to page 3, line 10 of the specification. However, a thin light transmitting layer tends to arise a problem in that a burr is generated on its inner periphery or the thinner periphery is stripped away from the information recording face when the light transmitting layer is punched. See page 6, lines 7-18 of the specification. By contrast, the circular cut is formed in the light transmitting layer prior to the punching step, as recited in independent claims 5 and 14. Therefore, the claim invention has an advantage that a burr is not generated on its inner periphery of the light transmitting layer or the inner periphery is not stripped away from the information recording face when the light transmitting layer is punched. See page 6, lines 7-16 of the specification.

Additionally, the receipt groove 43 of Maruyama is merely formed by molding and the first substrate 20 of Maruyama is not divided at the receipt groove 43. See col. 5, lines 33-35 of Maruyama. In other words, Maruyama does not disclose that the receipt groove 43 is used as the circular cut. Therefore, Maruyama does not disclose the circular cut of independent claims 5 and 14.

Therefore, for at least these reasons, independent claims 5 and 14 define patentable subject matter. Claims 7, 8, 10, 11 and 13 depend from independent claim 5, and therefore also define patentable subject matter for at least the reasons discussed above, as well as for the additional features they recite. Accordingly, Applicants respectfully request withdrawal of the rejection.

Additionally, independent claims 16 and 17 recite the allowable features, "cut in a light transmitting layer is formed at a larger diameter than an inner diameter of a center hole in a substrate" and "an area inside the cut is pressurized in a thickness direction by a punching tool to divide the light transmitting layer at the cut" as discussed above. Therefore, for at least these reasons, independent claims 16 and 17 also define patentable subject matter.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Amendment Transmittal
Petition for Extension of Time

Date: February 24, 2009

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